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INTEROFFICE CORRESPONDENCE

DATE: October 21, 1993

TO: A. M. Winzent-Dichard, Procurement, Bldg. 131, X2390

FROM: *MCB*
M. C. Burmeister, ER/EOM, Bldg. T891A, X5891SUBJECT: REVISION TO RESOURCE TECHNOLOGY GROUP (RTG) STATEMENT OF WORK
(SOW), SUBCONTRACT NO. MTS234889AD – MBU-033-93

Revision 3 to the Statement of Work (SOW) for RTG is attached. Note that page 10 of 23 has been revised to include an operator for sampling and maintenance activities. This operator shall be provided on an as needed basis, and the appropriate labor distribution has been revised accordingly.

Additionally, at this time, I would like to request that the "Schedule B" for Operable Unit 1 be revised. The "Schedule B" presently contains a line item for calibration gasses. I would like to revise this item to "calibration media". This would provide the flexibility for RTG to provide gas and liquid phase calibration media. No change in funding is required.

Please call me if you have any further questions.

alc

Attachment:
As Statedcc:
M. C. Broussard
J. R. Cirillo
M. T. Vess
ERM Record Center (2)

STATEMENT OF WORK
FOR
OPERATION AND MAINTENANCE OF THE INTERIM MEASURE/INTERIM
REMEDIAL ACTION TREATMENT FACILITIES FOR OPERABLE UNITS #1 AND #2
AT THE ROCKY FLATS PLANT.

Prepared by:

Environmental Remediation Management
Facilities Operations

EG&G Rocky Flats, Rocky Flats Plant

October 21, 1993

Revision 3

Approved: MC Burmeister 10-21-93
M. C. Burmeister
Environmental Operations Management

Approved: MC Broussard
M. C. Broussard, Manager
Operations Management, EOM

Classification Exemption Letter Attached
January 26, 1993

2/93

STATEMENT OF WORK FOR
OPERATION AND MAINTENANCE OF THE
INTERIM MEASURE/INTERIM REMEDIAL ACTION
TREATMENT FACILITIES FOR OPERABLE UNITS #1 AND #2
AT THE ROCKY FLATS PLANT

1.0 OBJECTIVE

The objective of this work is to provide operations and maintenance support services for the operation of groundwater and surface water recovery and treatment systems located at Operable Units #1 and #2 (OU-1 & OU-2). This contract will be in effect from March 1, 1993 at 7:00 a.m. to September 30, 1994 at 12:00 midnight. A training and transition period will take place from March 1, 1993 to April 1, 1993 to familiarize the new subcontractor with the daily operations of the two facilities.

2.0 SCOPE

All of the requirements listed below are necessary to continue support for operation and maintenance (O&M) of the OU-1 and OU-2 water treatment facilities. This subcontract provides general operation of the two facilities to include: replacement of the resin in the four ion exchange columns at OU-1; preparation and shipment for regeneration of the granular activated carbon at OU-2; water and waste sampling for both facilities; training of EG&G personnel relative to O&M procedures and requirements of both facilities; waste management support per RFP procedures; Maintaining of daily logs and any testing/analysis of systems that may be required; responding to technical questions and emergency needs requested by EG&G staff relative to the water treatment processes, operation and maintenance for OU-1 and OU-2.

The maintenance shall include but not be limited to the existing collection and UV/Peroxide-IX treatment system, calibration of instrumentation and GAC system, the chemical treatment system, the cross-flow membrane filtration system, the filter press system, the air ventilation and process system, and all associated process and storage tanks, piping, valves, pumps, meters, motors, equipment hardware, and

electrical components (including generator and general electrical work). Subcontractor shall provide emergency services/parts (ie , generator rental, emergency lighting, pumps, etc.) as required, when Rocky Flats Plant personnel and services cannot respond in a timely manner. The subcontractor shall be responsible for the operation and maintenance of in-line radionuclide and gas chromatograph "real-time" analysis equipment provided by EG&G Rocky Flats.

3.0 BACKGROUND/APPLICABLE DOCUMENTS

3.1 OU-1 BACKGROUND

The purpose of the OU-1 IM/IRA is to treat groundwater on an interim basis in preparation for more comprehensive treatment being developed as part of the Remedial Investigation/Feasibility Study (RI/FS). The Interagency Agreement (IAG) defines specific actions and dates associated with these activities.

The OU-1 IM/IRA consists of treating groundwater from four sources, the 881 building footing drain, a recovery well located in Individual Hazardous Substance Site (IHSS) 119.1, a french drain located on the 881 Hillside, and potentially water from plantwide projects. The groundwater treatment system consists of a Ultraviolet/Hydrogen Peroxide unit to destroy organic compounds through peroxidation catalyzed by ultraviolet light. From the peroxidation unit, the stream will pass through four ion exchange vessels to remove metals, uranium, and inorganic compounds. Daily activities include facility operations, maintenance, field sampling, and trouble shooting. Minimum operation of the facility is 8-hours per day, 5 days per week, with increased working hours added as required by changing influent groundwater conditions (peak conditions may require 7-days per week, 12 hours per day operation).

3.2 OU-2 BACKGROUND

The purpose of the OU-2 IM/IRA is to collect, treat, and discharge

surface water from South Walnut Creek to conduct a treatability (pilot) study, as a part of a RCRA/CERCLA Remedial Investigation Feasibility Study. The Interagency Agreement (IAG) defines specific actions and dates associated with these activities.

The OU-1 IM/IRA consists of collecting water at three surface water sources (SW59, SW61, SW132), pumping the water to a 10,000 gallon storage tank, treating via chemical precipitation/micro-filtration and granular activated carbon to remove heavy metals, radionuclides, and volatile organic compounds.

3.3 APPLICABLE DOCUMENTS

All plans and procedures must be consistent with, but not limited to, the following documents:

Rocky Flats Interagency Agreement (IAG) between the United States Department of Energy (DOE), the United States Environmental Protection Agency (EPA), and the State of Colorado, Jan. 22, 1991.

Interim Measures/Interim Remedial Action Plan and Decision Document, 881 Hillside Area, Operable Unit No. 1, January, 1990.

Operation and Maintenance Manual for the Startup, Operation, and Maintenance of the Interim Measure/Interim Remedial Action for the 881 Hillside Operable Unit No. 1, dated February 1992.

Interim Measure/Interim Remedial Action Plan/Environmental Assessment/Decision Document for the OU-2 South Walnut Creek Basin Surface Water Remediation Project, March 1991.

Draft Phase II Work Plan for South Walnut Creek Basin, 7/1/92.

Operations Procedures Manual for the Field Treatability Unit at OU-2, dated 11/1/92.

Rocky Flats Plant Site-wide QA Project Plan for CERCLA RE/FS and

RCRA Facility Investigations/Corrective Measures Studies
Activities dated 5/91.

All relevant Rocky Flats Plant Standard Operating Procedures (SOPs), technical specifications, and guidance documents.

All other applicable Rocky Flats Plant, local state, and federal documents and guidance.

4.0 GENERAL REQUIREMENTS

4.1 TRAINING REQUIREMENTS

The subcontractor shall inform and train personnel of potential hazards and RFP Health and Safety requirements before work begins (during the 30 day training period, the new subcontractor must follow the HSP requirements of the current subcontractor). Training requirements for operators and foremen include, but are not limited to:

- 40-hours of Occupational Safety and Health Administration (OSHA) required for "Hazardous Waste Operations and Emergency Response" (OSHA 29 CFR 1910.120) including annual 8-hour refresher courses as required.

- OSHA 24-hour on-the-job training as required for 29 CFR 1910.120, "Site Specific Training for Hazardous Waste Operations and Emergency Response".

- At least one person in a supervisory position shall have 8-hour 29 CFR 1910.120 "Supervisor Training for Hazardous Waste Operations and Emergency Response", and shall be accessible (on-site) during periods of treatment system operations. This person shall also be responsible for performing and documenting weekly health and safety meetings.

- 8-hour Environmental Management Radiation Worker training (EG&G provided).

2-hour Resource Conservation and Recovery Act (RCRA) Hazard Communications Training supplied by EG&G.

Respiratory protection computer based training course (EG&G provided), medical evaluation, and fit test(EG&G provided).

4-hour Confined Space Entry training (EG&G provided).

4-hour General Employee Training (GET) (EG&G provided).

8-hour RCRA Waste Generator training (EG&G provided).

RCRA Computer Based Training (EG&G provided).

Forklift Safety and Operator certification, as applicable.

8-hr Waste Generator Training (non-PA) + OJT (EG&G provided).

8-hr Waste Generator Training (non-rad) + OJT (EG&G provided).

EG&G Standard Operating Procedure Training.

Computer Security Training, Rocky Flats Environmental Database -RFEDS , (as applicable)

8-hour DOT/HAZMAT Training

The subcontractor shall follow EG&G Environmental Management procedures as specified by the EG&G Project Manager for operation of the facility.

4.2 GENERAL REQUIREMENTS

The subcontractor shall be responsible for all aspects of IM/IRA operations and maintenance in this SOW, except those items specifically stated to be provided by EG&G Rocky Flats. The

subcontractor shall provide all materials, personnel, and services to complete the work assignments as stated in this SOW. All plans and documents will be subject to review by the Department of Energy, EG&G Rocky Flats, Inc., and the regulatory agencies. Plans will be subject to approval from both the Environmental Department and the Waste Operations Department, as well as other relevant EG&G Rocky Flats departments. The subcontractor shall be responsible for revising these documents after agency reviews in accordance to EG&G Rocky Flats instructions.

The subcontractor shall provide a routine maintenance program which describes periodic preventative maintenance for individual equipment (ie. lubrication, inspection, cleaning, calibration, etc.).

Prior to the first day of system operation, the subcontractor shall attend a site specific health and safety meeting held on-site by the EG&G Rocky Flats project manager. The meeting shall address the HSP, Quality Assurance Addendum, SOP's, and other health and safety issues. All operations personnel shall be familiar with these materials prior to this meeting. Documentation of all, including off-site qualifications and training shall be submitted to the EG&G Rocky Flats project manager.

The subcontractor shall supply resumes and qualifications for operators and technical foreman in regards to aspects of operation of the treatment systems. This includes, but is not limited to, all emergency procedures, all safety practices, the location and use of safety equipment, all appropriate Rocky Flats rules and procedures, cleaning and maintenance practices, sampling, and residual handling.

The subcontractor shall be responsible for program interface and coordination of ongoing work with plant support groups as needed/required (Industrial Hygiene, Industrial Safety, Radiological Engineering, Waste Operations, Trucking, etc...).

The subcontractor shall provide an EG&G approved respiratory protection program at the conclusion of the transition period referred to in paragraph 1.0.

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The subcontractor shall provide all sampling and compositing equipment, packaging and labeling materials, forms, management, labor, preservatives, and all shipping materials and costs to satisfactorily conduct and complete the sampling program. All sample bottles and containers shall be "certified clean," and the subcontractor shall provide related documentation as requested. Shipping of samples is the specific responsibility of the subcontractor in accordance with EG&G ER Operation Procedures FO.13. The subcontractor shall submit all sampling information to the ERM Sample Management Office on a weekly basis. All applicable Department of Transportation (DOT) regulations and requirements shall be followed. Sampling, preparation, packaging, and shipping activities shall be in compliance with EPA, CDH, and RFP methods procedures, as well as the Field Sampling Plan. The subcontractor shall comply with all H&S procedures and requirements during sampling and related activities.

The subcontractor shall be responsible for data entry of all field and sampling custody data into EG&G Rocky Flats computer data systems, and follow-up with RFP data-base Sample Management Personnel that data has been received and recorded.

All hazardous residuals or suspected hazardous residuals generated from the work described in this SOW study shall be sampled by the subcontractor. Analytes and methods for analysis shall be approved by the EG&G Project Manager prior to sampling. Sample equipment and shipment shall be the responsibility of the subcontractor. Analytical laboratories shall be coordinated through the ERM Sample Management office.

The subcontractor shall package residual materials in accordance with all laws and regulations, as well as EG&G Rocky Flats policy. The subcontractor shall transport hazardous residuals to 90 day RCRA storage areas. Waste generated shall be segregated according to similar constituents. Liquids shall be kept to a minimum and separated from solids if appropriate. The subcontractor shall keep liquid materials segregated from solid materials.

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The subcontractor shall prepare a Sampling and Analysis Plan (SAP) to cover all phases of operations and testing of the system. The subcontractor shall prepare a plan that addresses sampling of air emissions, routine system operation sampling, residuals sampling, influent sampling, and effluent sampling. The SAP shall include, but not be limited to, the following; a brief introduction discussing background information, site and system information, and contaminant information; objectives of the SAP; sampling methodology; decontamination methodology; and quality assurance guidance. Adoption of the current SAP, with applicable modifications, is acceptable.

The subcontractor shall be responsible for updating the O&M Manuals for each of the two treatment facilities as needed or required, including general reporting support. New equipment, equipment modifications, or procedure changes will all be updated into the O&M Manual as they occur. Additional SOP's shall be written as required.

The subcontractor shall utilize one (1) Government Furnished Equipment (GFE) forklift during operations. The forklift shall be a Case 586E, 6,000 pound capacity four wheel drive or equivalent. The subcontractor shall provide employees that are trained and capable of operating this type of equipment.

The subcontractor shall lease one (1) four-wheel drive, full sized pickup truck. Personal vehicles utilized for government business, will receive reimbursement at \$0.25 per mile.

4.3 IDENTIFICATION AND IMPLEMENTATION OF MINOR PROCESS MODIFICATIONS

Implementation of modifications to the treatment facilities shall not include any construction nor major optimization studies by the subcontractors; however, the subcontractor shall implement minor changes in equipment operation and operation parameters to "fine

tune" the operation of the treatment facilities. The subcontractor shall recommend construction and/or equipment modifications that will enhance cost efficient operations as part of this task. Installation of in-line radionuclide and gas chromatograph "real-time" analysis equipment purchased by EG&G Rocky Flats, including modification of appropriate Standard Operating Procedures (SOP's), shall be a requirement of the subcontractor.

4.4 TRAINING OF EG&G ROCKY FLATS PERSONNEL

Upon contract expiration, the subcontractor shall be responsible for a 30 day complete training and transition period for new operating personnel.

The subcontractor shall provide site-specific safety training of EG&G Rocky Flats personnel or personnel designated by the EG&G project manager and shall participate in the site specific health and safety meeting on the first day of operations by EG&G Rocky Flats personnel.

5.0 TECHNICAL REQUIREMENTS/TASKS

5.1 OU-1

The subcontractor shall provide O&M of the IM/IRA minimum 8-hours per day, 5 days per week, and be capable of providing up to 24-hours per day, 7 days per week operation of the facility (worst case scenario). The subcontractor shall observe the following holidays: New Years Day, 4th of July, Thanksgiving Day, and Christmas Day. One operator and one floating technical foreman (on site 5 hrs per day) shall operate and maintain the facility at all times of operation.

The subcontractor shall be responsible for preparing an approved Health and Safety Plan (HSP) that covers operations and maintenance activities for all activities associated with operating 891 building. Adoption of the current HSP, with applicable modifications, is acceptable. During the initial first month of

training for the new subcontractor by the present contractor, the new subcontractor shall abide by the present subcontractors HSP. The HSP shall be structured in accordance with the following guidance documents:

Rocky Flats Plant Environmental Restoration Health and Safety Program Plan, dated October 26, 1990.

Rocky Flats Plant Environmental Restoration Health and Safety Plan Workbook, October 26, 1990.

Work Plan Manual for the Startup, Operation, and Maintenance of the IM/IRA for the 881 Hillside OU-1, dated February 1992.

The subcontractor shall be responsible for the complete purchase and changout of all spent resins in the four (4) ion-exchange columns at the discretion of the EG&G Project Manager. This change-out includes replacing the original resins, and handling and packaging the old resin in preparation for EG&G disposal. All labor and costs (except for disposal) shall be incurred by the subcontractor.

The subcontractor shall be responsible for providing technical-grade process chemicals required to operate the facility at 30 GPM at an influent quality consistent with table 5-1, "EXPECTED MAXIMUM CONCENTRATIONS FOR THE OU-1 IM/IRA TREATMENT FACILITY".

5.2 OU-2

The subcontractor shall provide 24-hour O&M of the Field Treatability Unit (FTU) seven days per week. One operator and one floating technical foreman (OU-2 19 hours per day, OU-1 five hours per day) shall operate and maintain the FTU at all times for the treatment system. *Additionally, one operator shall be available for sampling, and maintenance activities. Overtime shall be kept to a minimum.*

The subcontractor shall be responsible for preparing a Health and Safety Plan (HSP) that covers operations and maintenance activities for all field related facets of the work. Adoption of the current HSP, with applicable modifications, is acceptable. During the

initial first month of training for the new subcontractor by the present contractor, the new subcontractor shall abide by the present subcontractors HSP. The HSP shall be structured in accordance with the following guidance documents:

Rocky Flats Plant Environmental Restoration Health and Safety Program Plan, October 26, 1990.

Rocky Flats Plant Environmental Restoration Health and Safety Plan Workbook, October 26, 1990.

TABLE 5-1
EXPECTED MAXIMUM CONCENTRATIONS
FOR THE OU-1 IM/IRA TREATMENT FACILITY

Analyte	Expected Maximum	Treatment
	Concentration (Influent)	Requirements (Effluent)
Organics, $\mu\text{g/L}$		
2-Butanone	120	10
Methylene Chloride	5	5
Acetone	27	50
Carbon Disulfide	5	5
1,1 Dichloroethene	622	7
1,1 Dichloroethane	180	5
1,2 Dichloroethane	17	5
1,1,1 Trichloroethane	945	200
Carbon Tetrachloride	65	5
Trichloroethene	845	5
1,1,2 Trichloroethane	5,900	5
Tetrachloroethene	311	5
Toluene	20	2000
Metals, mg/l		
Aluminum	0.44	5
Antimony	0.0264	0.06
Arsenic	0.0049	0.05
Barium	0.49	1.0
Beryllium	0.00222	0.1
Cadmium	0.0021	0.01
Calcium	247.0	NS
Cesium	0.1515	NS
Chromium	0.0071	0.05
Copper	0.0355	0.2
Iron	0.68	0.3

NS No standard.

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TABLE 5-1
EXPECTED MAXIMUM CONCENTRATIONS
FOR THE OU-1 IM/IRA TREATMENT FACILITY

Analyte	Expected Maximum Concentration (Influent)	Treatment Requirements (Effluent)
Metals, mg/l		
Lead	0.0082	0.05
Lithium	0.0450	2.5
Magnesium	19.6	NS
Manganese	0.0738	0.05
Mercury	0.1290	0.002
Molybdenum	0.08	0.1
Nickel	0.0683	0.2
Potassium	30.8	NS
Selenium	0.22	0.01
Silicon	7.0	NS
Silver	0.0145	0.05
Sodium	134.0	NS
Strontium	2.7	NS
Thallium	0.0072	0.01
Vanadium	0.0391	0.1
Zinc	0.43	2.0
Water Quality mg/L		
Bicarbonate	510.0	NS
Carbonate	53.4	NS
Chloride	158	250
Fluoride	0.94	NS
Nitrate/nitrite	8.29	10
Sulfate	127	250
Total suspended solids	13.0	NS
Total dissolved solids	718	400

NS No standard.

TABLE 5-1
EXPECTED MAXIMUM CONCENTRATIONS
FOR THE OU-1 IM/IRA TREATMENT FACILITY

Analyte	Expected Maximum Concentration	Treatment Requirements
	(Influent)	(Effluent)
	Radionuclides pCi/l	
Gross Alpha	21.5	15
Gross Beta	17.8	50
Uranium (Total)	15.4	40
Strontium (89, 90)	1.0	8
Plutonium (239, 240)	0.01	15
Americium (241)	0.01	4
Tritium	550	20,000

NS

No standard.

Rocky Flats Plant Environmental Restoration Health and Safety Plan for the Phase II RFI/RI at OU-2, the 903 Pad, Mound and East Trenches area.

The subcontractor shall be responsible for providing technical-grade process chemicals required to operate the facility at 60 GPM at an influent quality consistent with table 5-2, "EXPECTED MAXIMUM CONCENTRATIONS FOR THE OU-2 IM/IRA TREATMENT FACILITY".

The subcontractor shall provide one (1) portable toilet facility to be kept at the site. The subcontractor shall also provide weekly servicing for the portable toilet.

The subcontractor shall provide for all services including, but not limited to: PPE, GAC regeneration, and fuel for the 250 kW generator.

6.0 DELIVERABLES AND SCHEDULES

- 6.1 The subcontractor shall keep a daily log of all O&M activities, all sampling activities, all chargeable materials, daily inspections, supplies and equipment, and all repairable activities and incidences. Copies of the daily logs and all other documentation shall be made available to the EG&G Project Manager as requested. Monthly reports shall be provided on IBM compatible diskette format containing the document file in Word Perfect format.
- 6.2 The subcontractor shall provide 15 copies of the draft HSP and eight copies of the final to the EG&G Project Manager. The final HSP shall be submitted within three (3) weeks after receipt of all EG&G Rocky Flats review comments. The Final HSP shall also be provided on a IBM compatible diskette containing the document file in Wordperfect format. Diskettes so furnished shall become the property of DOE/RFO.
- 6.3 The subcontractor shall provide a written summary of findings for each request and submit to the EG&G Project

TABLE 5-2
 EXPECTED MAXIMUM CONCENTRATIONS
 FOR THE OU-2 IM/IRA TREATMENT FACILITY

Analyte	Expected Maximum Concentration (Influent)	Treatment Requirements (Effluent)
Organics, $\mu\text{g/L}$		
Acetone	130	10U*
Carbon Tetrachloride	219	5
Chloroform	82	1U
1,1-Dichloroethene	142	7
1,1-Dichloroethane	6	5U*
1,2-Dichloroethene (total)	10	5U*
Methylene Chloride	44	5U*
Tetrachloroethene	279	1U
Trichloroethene	153	5
Vinyl Chloride	15	2
Dissolved Metals, mg/l		
Beryllium	0.0053	0.1
Manganese	0.5790	0.050
Strontium	0.8396	0.396**
Tin	0.9036	0.100

U Detection limit for that constituent.

* No ARAR standard exists for this constituent; effluent requirement is TBC concentration, considered as an IM/IRA treatment goal.

** No ARAR of TBC standard exists for this constituent; effluent requirement is background concentration, considered as an IM/IRA treatment goal.

TABLE 5-2
EXPECTED MAXIMUM CONCENTRATIONS
FOR THE OU-2 IM/IRA TREATMENT FACILITY

Analyte	Expected Maximum	Treatment
	Concentration (Influent)	Requirements (Effluent)
Total Metals, mg/l		
Arsenic	0.014	0.025U
Aluminum	25.121	0.2U
Antimony	0.0655	0.064*
Barium	1.8530	1.000
Beryllium	0.0519	0.1
Cadmium	0.0132	<0.005
Chromium	0.1918	0.05
Cobalt	0.1232	0.050*
Copper	0.2664	0.025U
Iron	183.96	0.3
Lead	0.1954	0.005U
Lithium	0.4100	2.500*
Manganese	3.3068	0.05
Mercury	0.0022	0.0002U
Nickel	0.2239	0.04U
Selenium	0.0070	0.01
Vanadium	0.5019	0.1
Zinc	1.3475	0.05

U Detection limit for that constituent.

* No ARAR standard exists for this constituent; effluent requirement is TBC concentration, considered as an IM/IRA treatment goal.

TABLE 5-2
EXPECTED MAXIMUM CONCENTRATIONS
FOR THE OU-2 IM/IRA TREATMENT FACILITY

Analyte	Expected Maximum Concentration (Influent)	Treatment Requirements (Effluent)
Dissolved Radionuclides, pCi/l		
Gross Alpha	20.11	11
Gross Beta	39.90	19
Total Uranium	9.96	10
Total Radionuclides, pCi/l		
Gross Alpha	730	11
Gross Beta	545	19
Plutonium 239, 240	3.28	0.05
Americium 241	0.53	0.05
Total Uranium	11.69	10

Manager within five (5) days from date of resolution.

6.4 The subcontractor shall submit to the EG&G Project Manager all log books, documentation, manuals, equipment, materials, supplies, badges, and all other items that are the property of the U.S. Government within ten days of completion of the subcontract.

6.5 Budget Status Reports shall be completed monthly by the subcontractor and submitted to the EG&G Project Manager by the 20th day of each month within the Monthly Task Order Status Reports for the current month's activity. The report will be based on a current monthly accrual consisting of a combination of actual costs incurred plus the costs anticipated through the end of each current month. This report shall include earned value statements that will detail the following:

- Budgeted Cost of Work Performed for the period (BCWP);
- Actual Cost of Work Performed for the period (ACWP);
- Budgeted Cost of Work Scheduled for the period (BCWS); and
- Cumulative costs to date for the above items.

Variance values shall be calculated for the above values comparing actual costs versus budgeted costs and work scheduled (BCWS) versus work performed (BCWP). Values are calculated as $((BCWP - ACWP) \times 100) / BCWP$ and $((BCWP - BCWS) \times 100) / BCWS$. If these variances exceed +/-10% for a cumulative value or +/- 20% for a monthly value, the budget status report shall detail the reasons for the variance and the corrective action to be implemented. The variance reports shall include the

current monthly variance report as well as a cumulative variance report. All calculations shall be completed and reported for the current month and for the year. Budgeted costs for work shall be based upon the Work Plan Implementation Plan Milestone and activity schedule.

7.0 QUALITY ASSURANCE REQUIREMENTS

Work performed under this SOW is governed by the EG&G Environmental Restoration (ER) Quality Assurance Project Plan (QAPjP). The ER QAPjP complies with the requirements of EPA QAMS-005/80 and DOE Order 5700.6B which addresses ASME NQA-1. The subcontractor shall comply with the following specific Quality Assurance (QA) requirements prior to the initiation of work, as appropriate:

Quality Assurance Addendum - After review of the draft work plan, EG&G ER shall prepare a Quality Assurance Addendum.

Organization - The authority and responsibilities of persons or organizations performing work under this statement of work shall be established, documented and submitted to EG&G ER. An organization chart identifying specific individuals by name, supported by itemized authorities and responsibilities is a suitable means of documentation.

Personnel Qualification - Personnel performing technical work affecting quality shall receive training and indoctrination in accordance with 3-21000-ADM-2.02 to applicable procedures to assure proper understanding of the QA and technical requirements of this SOW before beginning work. In addition, written personnel qualification requirements shall be established for all postings performing technical work. Documented evidence of personnel training, training material content, personnel qualification requirements, and the qualification of personnel who meet the personnel qualification requirements shall be maintained and made available to EG&G for review upon request. EG&G will provide

training for Quality Assurance and technical procedures furnished by EG&G.

Instructions, Procedures, and Drawings - All work shall be performed to EG&G ER approved and controlled procedures except where excluded in writing by EG&G.

Document Control - The subcontractor shall acknowledge receipt of and manage EG&G plans and procedures in accordance with EG&G procedure number 3-21000-ADM-06.01.

Control of Purchased Items and Services - Items or services procured under this contract shall be performed in accordance with the requirements of the QAPjP.

Identification and Control of Items - When applicable, the subcontractor shall prepare written procedures that ensure that only correct and accepted items are used or installed and that they are traceable through unique identifiers. The procedures shall be submitted to EG&G for approval.

Inspection - Quality affecting activities are subject to inspection by EG&G. These inspections will be performed in accordance with EG&G procedure number 3-21000-ADM-10.02.

Control of Measuring and Test Equipment - Activities in which personnel use measuring and test equipment shall be controlled in accordance with EG&G procedure number 3-21000 ADM-12.01. Such devices shall be controlled, calibrated, and adjusted at predetermined intervals (established by the subcontractor and approved by EG&G) to maintain accuracy.

Handling, Storage, and Shipping - Activities in which personnel handle, store, package, ship, or receive items which if damaged, lost, or deteriorated would be detrimental to the work performed by the subcontractor or those activities in which personnel handle, store, package, or ship hazardous material shall be controlled by written procedures. The procedures shall be submitted to EG&G for

approval.

Control of Nonconforming items - Activities regarding the identification and disposition of nonconforming items shall be performed in accordance with EG&G procedure number 3-21000-ADM-15.01. The control of nonconforming items shall apply all activities that involve the handling of all items, including samples, data, raw materials, hardware, and software.

Accessibility - The subcontractor's work place and working records shall be accessible during normal working hours for verification or audit by EG&G or their representatives, during the performance of this contract. All completed records shall become the property of EG&G and shall be turned over to EG&G no later than sixty (60) days following the completion of the technical work.

Miscellaneous:

The supplier shall perform all work in accordance with EG&G Quality Assurance program requirements. All work shall be performed under the cognizance of the responsible EG&G organization and in accordance with approved EG&G implementing procedures, or supplier procedures which have been approved by the responsible EG&G organization prior to the start of any work. The responsible EG&G organization shall review and approve all work in accordance with applicable implementing procedures.

The supplier shall not be permitted to:

(1) Provide any safety-related items without prior inspection and acceptance by EG&G Quality Assurance organization.

(2) Perform any special processes such as welding, NDE, heat treatment, plating, etc., for which acceptance is based on supplier-furnished personnel qualifications or other quality assurance criteria.

(3) Perform inspections or tests of equipment or components for the

purpose of determining final acceptance by EG&G, except for those inspections and tests conducted in accordance with approved EG&G implementing procedures or supplier procedures which have been approved by EG&G. All such inspections and tests shall be performed using measuring and test equipment verified and authorized by the Rocky Flats Metrology Lab. All work shall be performed under the direct supervision of EG&G, and witnessed by qualified EG&G personnel.